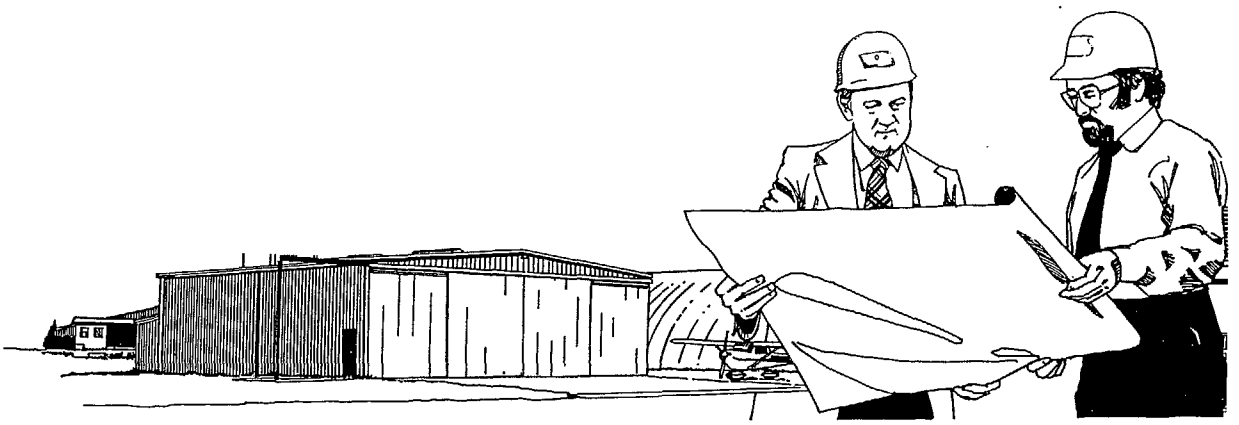
CHAPTER FOUR
ALTERNATIVES



Chapter Four
DEVELOPMENT ALTERNATIVES

Aviation facilities required to accommodate the projected aviation demand throughout the planning period were identified in the previous chapter. The next step in the planning process is to evaluate the various ways in which those facility needs could be provided at Kingman Airport. To accomplish this, alternatives were developed and evaluated.

The first alternative considered was the no development alternative. The second considered the transfer of projected aviation demand to other airports within the region, while the third involved the development of an entirely new airport. Finally, the fourth alternative considered the development of Kingman Airport.

The alternative concepts presented on the following pages are provided for the purpose of reviewing the relative merits of each alternative, as well as the impacts of implementation on the existing airport facilities, the environs and the community.

NO DEVELOPMENT ALTERNATIVE

The no development alternative involves maintaining the airport in its present condition and not providing the facility improvements recommended in the previous chapter. With this alternative, maintenance activities would continue, however, new facilities would not be built.

The no development alternative would not expand on the type of airside and landside facilities available and would not improve the airport's ability to attract new users. While the existing runway system is considered to be adequate in terms of operational capacity, the established need for additional runway length would not be accommodated by this alternative, thereby potentially restricting the type of aircraft that can utilize the airport. Limited ability to serve a variety of aircraft anticipated to use the airport in the future could limit the City's ability to attract

industrial park tenants, including many major employers. A decision not to develop the airport would be expected to reduce the airport's economic development potential, and would eliminate the potential socioeconomic benefits that often indirectly result from the provision of new facilities.

While, the no development alternative might be considered the best alternative from a purely environmental standpoint, and one which would require the least amount of financial commitment to implement, the no development alternative was not considered to be preferable since it ultimately would limit the airport's ability to serve anticipated aviation demand within the area.

SERVICE FROM ANOTHER AIRPORT

A review of existing airports within the region was conducted to determine the potential to accommodate some of the aviation demand currently being experienced as well as that anticipated at the Kingman Airport during the 20-year planning period. Based on this review, it was determined that the Bullhead/Laughlin Airport, located roughly 36 miles to the west, was the only public use airport within a 40 mile radius. No other public use airports within the region, that would be close enough to feasibly serve the Kingman market, would provide the minimal level of adequate facilities.

Due to its own aviation market, the Bullhead/Laughlin Airport is geared toward commercial service and itinerant general aviation activity. In order to accommodate a significant increase in general aviation based aircraft at this airport, expansion of facilities would be necessary. Kingman Airport, on the other hand, is geared toward the general aviation market and has a significant amount of aircraft parking apron currently available to accommodate an increase in this demand. No advantages were identified with this alternative. In consideration of land use issues, costs to upgrade each airport, as well as the airport's proximity to the aviation user, this alternative was not considered preferable.

DEVELOP A NEW AIRPORT

The alternative of constructing an entirely new airport to meet area aviation demands was also considered. The first consideration was the environmental impacts that would result from the development of a new airport within the region. Due to the level of development that would be required with this alternative, these impacts would be significantly greater than those anticipated with the proposed development at the Kingman Airport.

In addition, the existing airport's location adjacent to the Airport Industrial Park is an attractive amenity for marketing prospective tenants, and provides an additional mode of transport for employees, supplies and products. A substantial commitment of time, natural resources and public and private funds, is reflected in the existing airport and industrial park. The duplication of these facilities at a different site would represent a tremendous financial commitment for land acquisition, site preparation, and construction of airport facilities.

No advantages were identified with this alternative. This alternative was not considered to be preferable because the closing of Kingman Airport would result in the loss of a substantial investment in an existing, and increasingly important transportation facility.

KINGMAN AIRPORT DEVELOPMENT ALTERNATIVES

Any development proposed as part of a master plan is evolved from an analysis of projected needs for a set period of time. Even though the needs were determined by the best methodology available, it cannot be assumed that future events will not change these needs. The master planning process attempts to develop a viable scheme for meeting the anticipated needs for the planning period. No development plan should be adopted that would preclude expansion beyond the 20-year period or that would require expansion commitments prior to certainty of need. This desired flexibility becomes one of the key considerations in the development and evaluation of both airside and landside development alternatives.

AIRSIDE ALTERNATIVES

Consistent with the facilities identified in the previous chapter, two airside alternatives were developed for Kingman Airport. Each of these involves the following.

- Runway extension to 7,800 feet
- Taxiway Development
- Precision Instrument Approach

With each alternative, the runway extensions proposed would be to Runway 3-21. This runway alignment provides better wind coverage than Runway 17-35, is 150 feet rather than 75 feet in width, is more centered with the landside facilities (allowing for shorter taxiing distances), and is currently considered the primary runway.

In addition, each airside alternative was designed to accommodate a future precision instrument approach to the primary runway. Due to known wind conditions, the precision instrument approach has been planned for Runway 21 with each of these alternatives.

Airside Alternative I

Airside Alternative I, as illustrated in **Exhibit 4A**, consists of an extension of Runway 3-21 and its parallel taxiway, 969 feet to the northeast. This extension would accommodate the anticipated future need for a 7,800 foot runway at Kingman Airport. While the runway and taxiway development would be accommodated with this alternative within existing airport property, the future precision instrument approach to Runway 21 would extend the Runway Protection Zone (RPZ) further off of airport property.

This alternative would extend the runway further from existing landside development areas and would require the acquisition of approximately 70 acres for the future RPZ. This alternative would be capable of accommodating additional future extensions of runway 3-21 to the southwest if warranted in the future.

In addition to the runway extension, Airside Alternative I would involve the extension of the partial parallel taxiway to Runway 17-35 to a full parallel taxiway (a distance of roughly 3,400 feet to the south), and the construction of two connecting taxiways at the optimum distance (2,000 feet) from each end of Runway 17-35. The parallel taxiway would be constructed at a width of 75 feet; the connecting taxiways would be 50 feet in width.

Airside Alternative II

Airside Alternative II, **Exhibit 4B**, consists of an extension of Runway 3-21 and its parallel taxiway, 969 feet to the southwest. This extension would also accommodate the anticipated future need for a 7,800 foot runway at Kingman Airport. As with Alternative I, the runway and taxiway development would be accommodated within the existing airport property, however, the future precision instrument approach to Runway 21

would extend the RPZ off of airport property.

This alternative would provide a runway that is more centered with existing landside development areas than the existing runway or the future runway with Alternative I, and would require less land or easement acquisition (30 acres) for the future RPZ than that of Alternative I. As with Alternative I, this alternative would be capable of accommodating additional future extensions of runway 3-21 to the southwest if warranted in the future.

In addition, this alternative would also involve the extension of the partial parallel taxiway to Runway 17-35 to a full parallel taxiway (a distance of roughly 3,400 feet to the south), and the construction of two connecting taxiways at the optimum distance (2,000 feet) from each end of Runway 17-35. The parallel taxiway would be constructed at a width of 75 feet; the connecting taxiways would be 50 feet in width.

Preferred Airside Alternative

While either airside alternative is capable of accommodating the airside facility needs identified as part of this master plan, Airside Alternative II would be considered the preferred. This alternative would provide a somewhat more efficient airside layout in relation to existing landside facility areas, and would require less land acquisition to accommodate the future RPZ. The extension of the runway and parallel taxiway in this direction would serve to open up additional area for the future development of aviation services. In addition, it would make taxiway access to the currently undeveloped southwest corner of airport property more feasible, thereby providing a very attractive area for future industrial development.

For these reasons, Airside Alternative II was considered to provide a balance between the interests and needs of commercial service, general aviation, and industrial development.

LANDSIDE ALTERNATIVES

In response to the facilities identified in the previous chapter, three airside alternatives were developed for Kingman Airport. Each of these alternatives were evaluated on their ability to accommodate the following facilities.

- New Terminal Building (approximately 10,000 square feet)
- Commercial Service Ramp
- Additional T-Hangars/Shades and relocation of an existing Shade Hangar Unit
- Future FBO Facilities
- Corporate Hangars
- Extension of Flightline Drive to the North
- Local/Itinerant Tiedowns
- Automobile Parking

All three alternatives would include the siting of the future terminal building in the same location as the existing terminal, since it is centered longitudinally along the primary runway, and is located at the extension of the major access road into the airport, Mohave Airport Drive. Likewise, each alternative provides the same area for the commercial service ramp and automobile parking facilities. The location of this ramp will require the relocation of the existing fuel farm.

It is important to note that the amount of existing aircraft ramp area available at Kingman Airport is considered to be adequate for both the short and long term needs anticipated. For this reason, most of the ramp area reserved for local/itinerant general aviation, commercial service, and corporate aircraft, as depicted with these three alternatives, is already in existence. One exception is the potential development area on the north end of the field, which is included with each alternative to indicate the future flexibility in development.

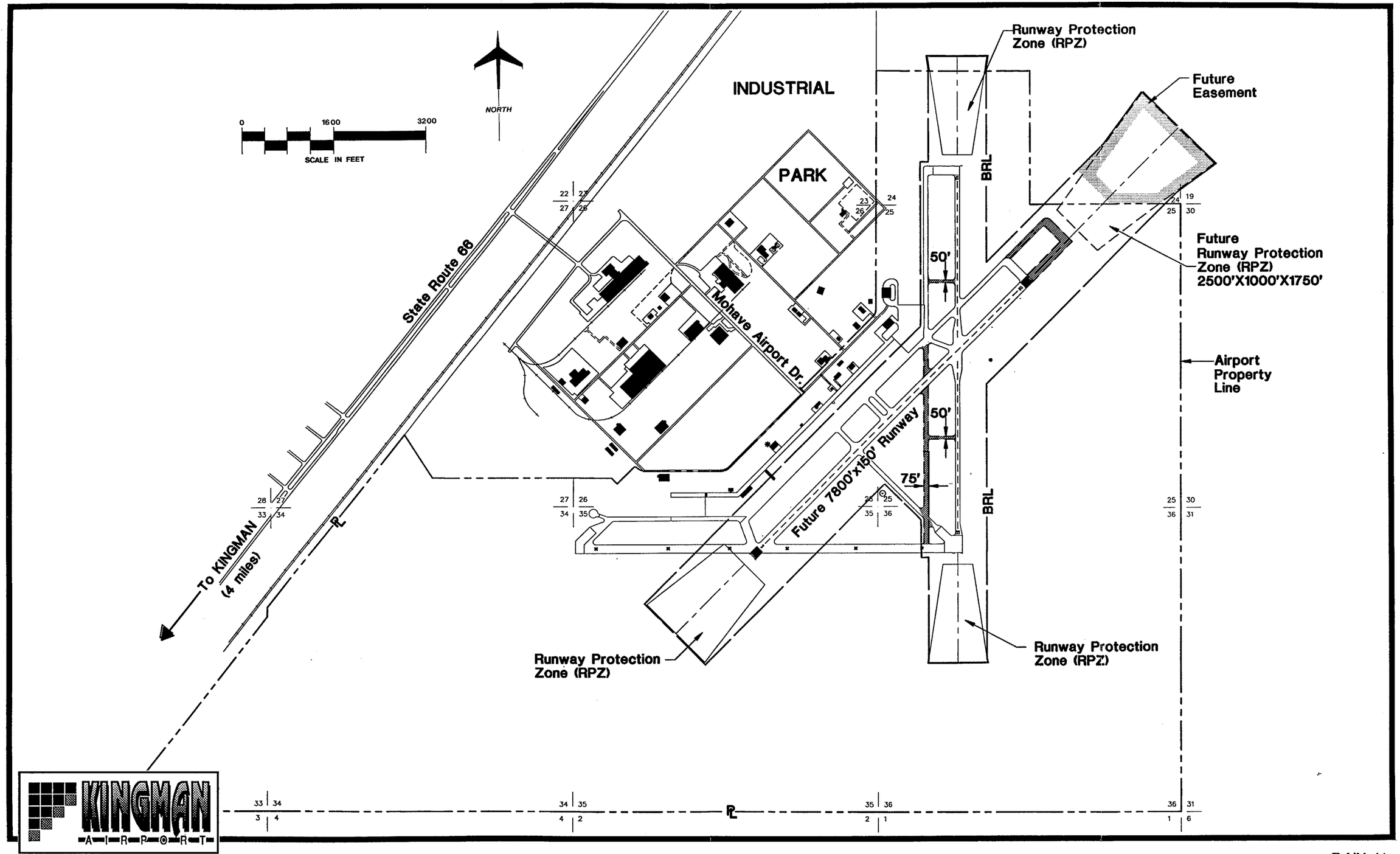


Exhibit 4A
AIRSIDE ALTERNATIVE I

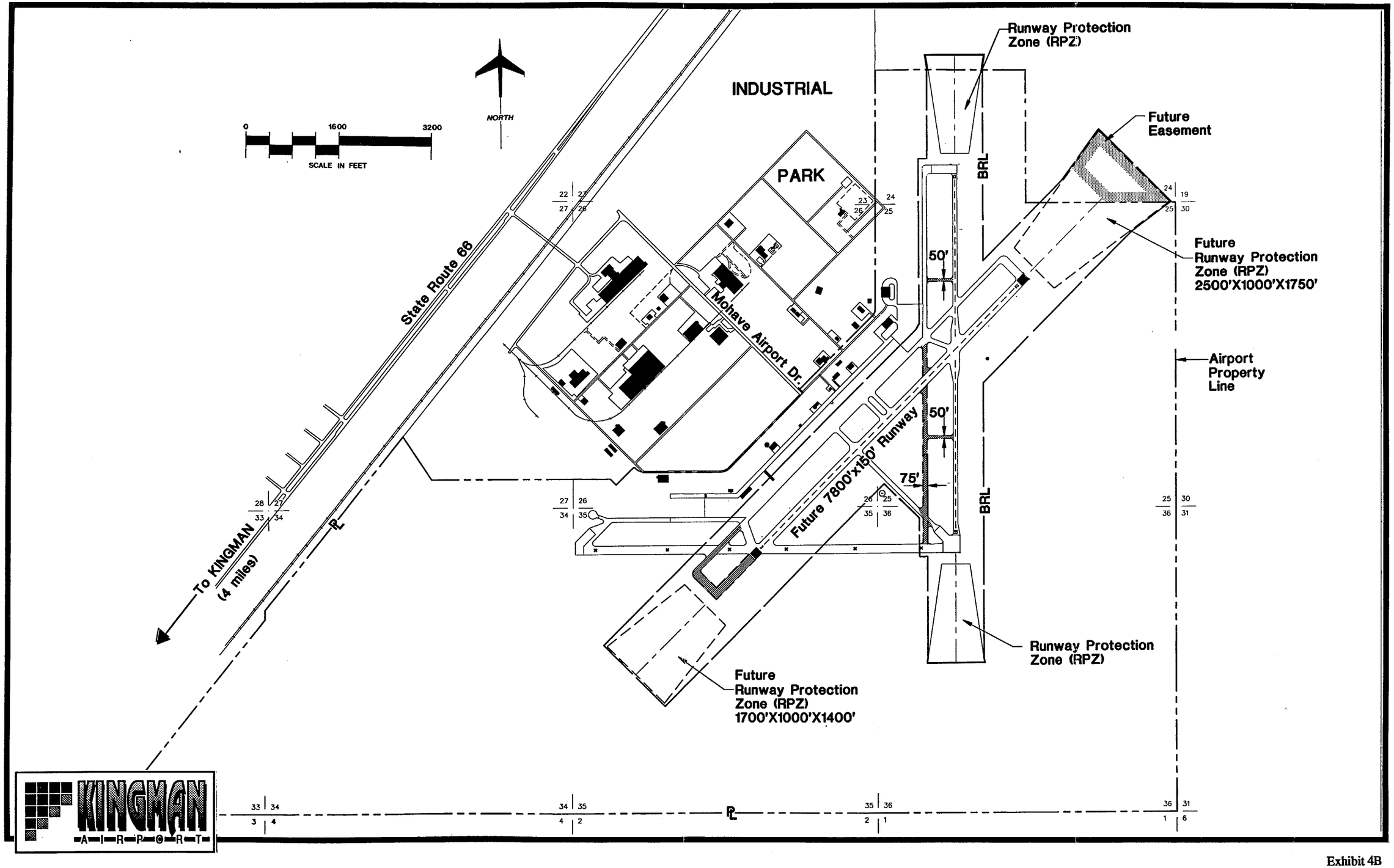


Exhibit 4B
AIRSIDE ALTERNATIVE II

Each alternative included the provision to extend Flightline Drive to the north in order to provide access to the north end of the airfield for future airside development.

All alternatives include the need to relocate the existing Shade Hangar structure which currently penetrates the Building Restriction Line (BRL). In addition, all alternatives would propose the removal of the existing terminal building prior to the construction of the new terminal in its place.

Landside Alternative A

Alternative A, illustrated in **Exhibit 4C**, would involve the placement of future T-Hangars/Shades at the south end of the apron, on either side of existing general aviation hangars. While the taxiing distance to takeoff on Runway 3 would be relatively short for the aircraft stored in these areas, this alternative would require a relatively long taxiing distance for these aircraft for takeoffs on Runway 21.

This alternative would propose the establishment of three local/itinerant tiedown areas, one on either side of the commercial service ramp, and one on the north end of the ramp in the currently undeveloped area. With this layout, the ramp areas would be able to serve the existing FBO, and would be able to ultimately accommodate the siting of two additional FBO's.

Corporate hangar parcels would be reserved in two areas: one just north of the existing FBO, and one in the currently undeveloped area on the north end of the ramp. This alternative allows for the future addition of corporate hangars prior to any construction of new ramp on the far north end of the ramp.

Landside Alternative B

Alternative B, illustrated in **Exhibit 4D**, would involve the placement of future T-Hangars/Shades on either side of the commercial service and FBO areas. This layout would minimize taxiing distances for those general aviation aircraft stored in these T-Hangar/Shade areas.

This alternative would provide for the establishment of four local/itinerant tiedown areas, one on either side of the commercial service ramp, one on the south end of the ramp, and one on the north end of the ramp in the currently undeveloped area. With this layout, the ramp areas would be able to serve the existing FBO, and to ultimately accommodate the siting of two additional FBO's. This alternative would locate the FBO facilities at a distance adequately separated or spaced along the ramp.

Corporate hangar parcels would be reserved in two areas: one at the far south end of the existing ramp, and one in the currently undeveloped area on the far north end of the ramp.

Landside Alternative C

Alternative C, illustrated in **Exhibit 4E**, would involve the consolidation of nearly all future T-Hangars/Shades on the far north end of the ramp in the currently undeveloped area. One disadvantage with this alternative is that it would be difficult to justify the costs of a new ramp in this area while adequate ramp is still available elsewhere on the field.

This alternative would provide for the establishment of three local/itinerant tiedown areas, one on either side of the commercial service ramp, and one on the north end of the ramp in the currently undeveloped area. With this layout, the ramp areas would be able to serve the existing FBO, and would be able to ultimately accommodate the siting of two additional FBO's. One disadvantage of this tiedown and FBO layout would be the siting of a future FBO within close proximity to the existing FBO facilities.

The two corporate hangar parcel areas proposed with this alternative would be consolidated at the far south end of the existing ramp.

Preferred Landside Alternative

While each of the alternatives would adequately satisfy the identified facility needs, and each provides different advantages and disadvantages to airport development, based on airport efficiency, Landside Alternative B is considered to provide the most balanced layout for development.

SUMMARY

The process utilized in assessing the landside and airside development alternatives involved an analysis of short and long term requirements as well as future growth potential. Current airport design standards were considered at every stage of development. Safety, both air and ground, were given a high priority in the analysis of alternatives.

In addition to the considerations directly related to the airport's facilities and operations, the analysis of alternatives considered the potential impacts on the adjacent industrial park and the surrounding community. Based on this analysis, the alternatives that did not provide for the development of Kingman Airport were not believed to be preferable nor prudent. Continued development of the Kingman Airport to serve the growing aviation demand is expected to provide for continued economic growth within the region.

The combination of Airside Alternative II and Landside Alternative B was believed to support airport efficiency, to provide the most flexibility for future aviation development, and to complement the development of the Kingman Airport Industrial Park. This combination was considered best overall due to its ability to balance the interests and needs of commercial service, general aviation and industrial development.

In the case of both the airside and landside alternatives, it is important that the ultimate selection of a preferred development alternative take into consideration the goals and objectives of the Mohave County Airport Authority and the City of Kingman. Once the preferred development layout is selected and refined, the Airport Layout Plan set will be prepared and a development schedule and financial program will be developed.

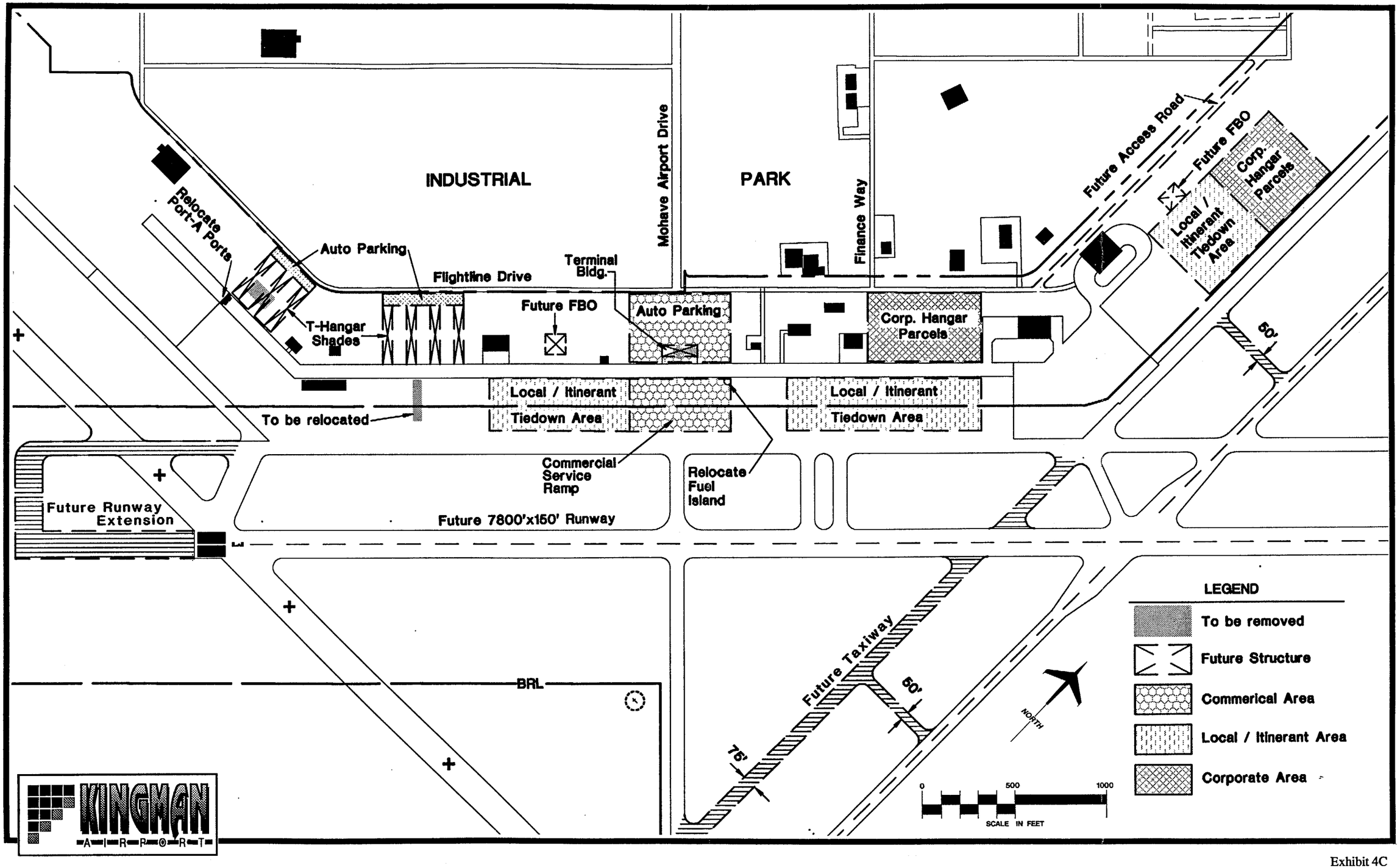


Exhibit 4C
LANDSIDE ALTERNATIVE A

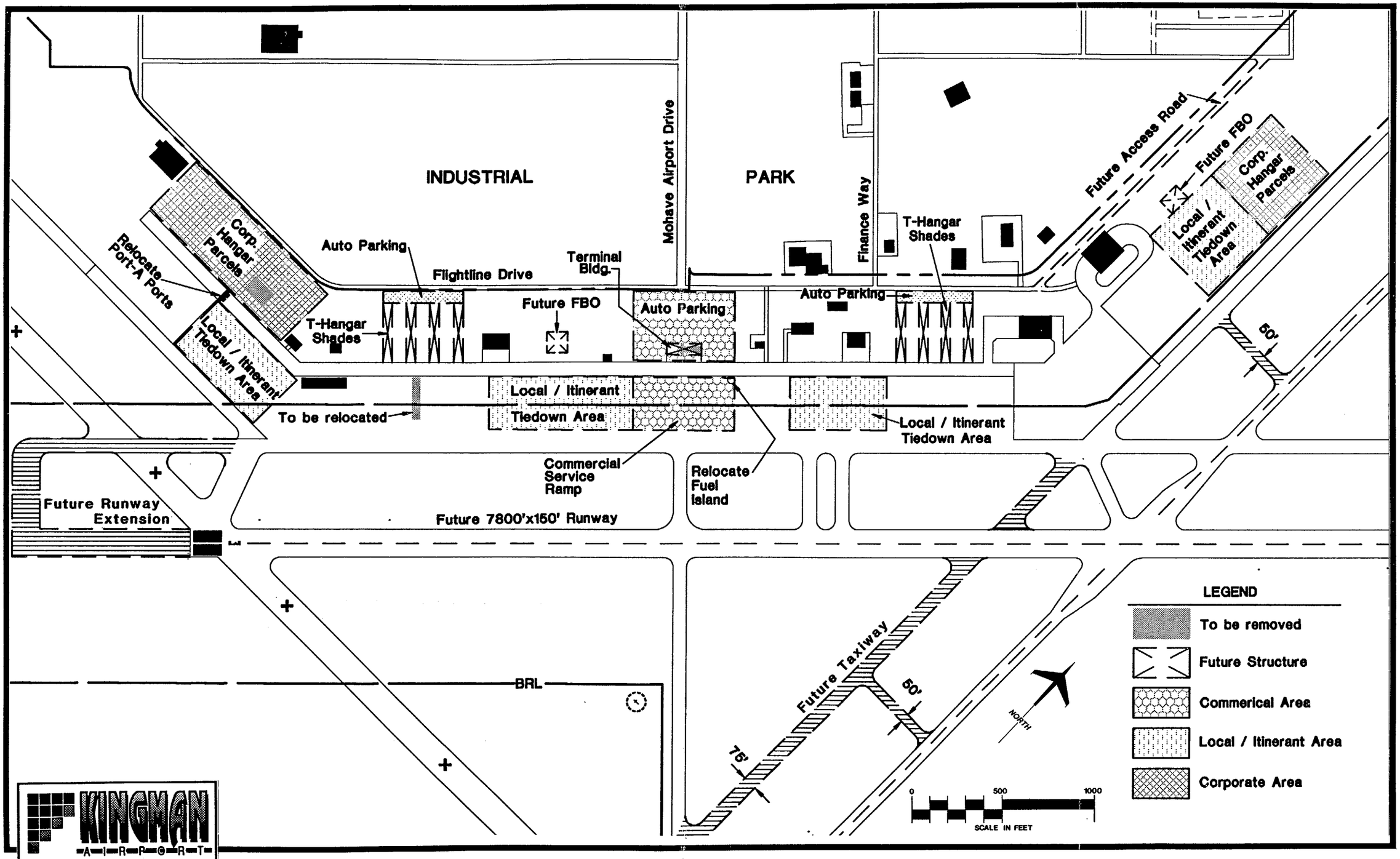


Exhibit 4D
LANDSIDE ALTERNATIVE B

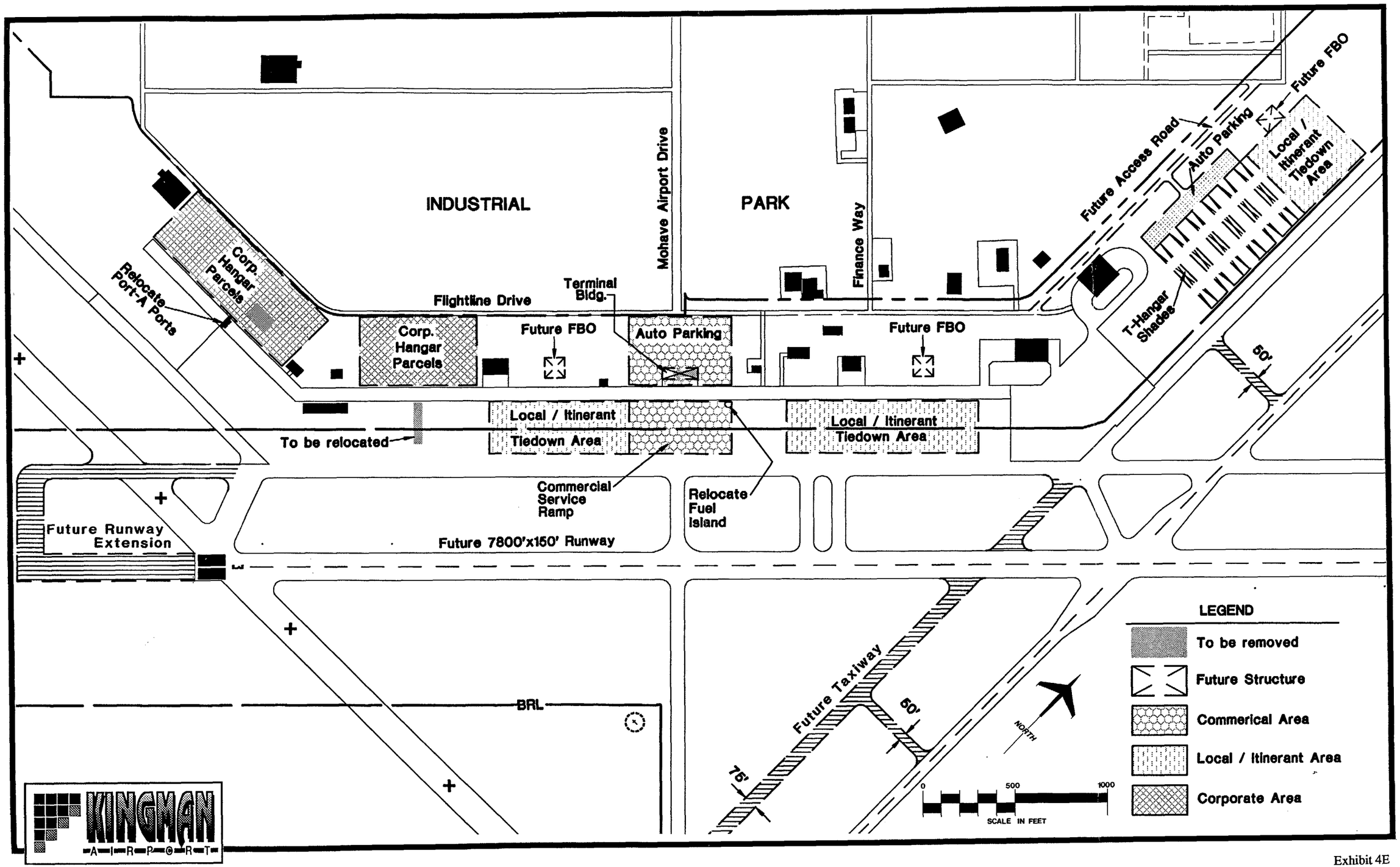


Exhibit 4E
LANDSIDE ALTERNATIVE C

Exhibit 4F
LANDSIDE ALTERNATIVE D